

CLAIMS

What is claimed is:

- 5 1. A scanning head module, comprising:
 a light source; and
 a housing comprising an optical system and a main board;
wherein
 said light source illuminating a document to be scanned;
10 said optical system including a set of mirrors and a lens
 assembly;
 said main board including a photosensitive detector and a
 processing circuit, wherein the illumination light from the document is
 guided by said set of mirrors and focused by said lens assembly onto
15 said photosensitive detector, and said processing circuit processes the
 signal received from said photosensitive detector.

2. The scanning head module of claim 1, wherein said light
source comprises a light emitting diode (LED).

- 20 3. The scanning head module of claim 1, wherein said light
source comprises a cold cathode fluorescent lamp (CCFL).

- 25 4. The scanning head module of claim 1, wherein said
photosensitive detector comprises a charge coupled device (CCD).

5. The scanning head module of claim 1, wherein said
photosensitive detector comprises a CMOS sensor.

6. The scanning head module of claim 1, wherein said photosensitive detector comprises a contact image sensor (CIS).

5 7. The scanning head module of claim 1, wherein said processing circuit comprises an application specific integrated circuit (ASIC).

10 8. The scanning head module of claim 7, wherein said application specific integrated circuit comprises an analog-to-digital converter circuit (ADC circuit) for digitizing the signal received from said photosensitive detector.

15 9. The scanning head module of claim 1, wherein said processing circuit comprises an analog-to-digital converter circuit and an application specific integrated circuit, said analog-to-digital converter circuit digitizing the signal received from said photosensitive detector and said application specific integrated circuit processing the digitized output of said analog-to-digital converter circuit.

20 10. The scanning head module of claim 1, wherein said main board is formed of polycarbonate (PC).

25 11. The scanning head module of claim 1, wherein said main board further comprises a memory for accessing the information of said process circuit.

12. The scanning head module of claim 1, wherein said main board further comprises an interface control circuit for outputting the

information of said processing circuit to a host through an interface.

13. The scanning head module of claim 1, wherein said interface control circuit comprises a universal series bus (USB).

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14. The scanning head module of claim 1, wherein said interface control circuit comprises an IEEE1394 series bus.

10 15. The scanning head module of claim 1, wherein said main board further comprises a motor control circuit.

16. A use of the scanning head module of claim 1, wherein said scanning head module is used as a scanner head of a scanner.

15 17. A use of the scanning head module of claim 1, wherein said scanning head module is applicable in a copying machine.

18. A use of the scanning head module of claim 1, wherein said scanning head module is applicable in a facsimile machine.

20 19. A use of the scanning head module of claim 1, wherein said scanning head module is applicable in a multi function peripheral (MFP).

25 20. The scanning head module of claim 1, wherein said scanning head module is movably installed in a body of a scanning system.

21. The scanning head module of claim 1, wherein said scanning

head module is fastened inside a body of a scanning system.

22. A scanning head module, comprising:
a light source; and
5 a housing comprising an optical system and a main board;

wherein

said light source illuminating a document to be scanned;
said optical system including a set of mirrors and a lens assembly;
said main board including a photosensitive detector, a processing
10 circuit, a memory and an interface control circuit, wherein the
illumination light from the document is guided by said set of mirrors and
focused by said lens assembly onto said photosensitive detector, and
said processing circuit processes the signal received from said
photosensitive detector, while said memory accesses the information of
15 said processing circuit, and said interface control circuit outputs the
information of said processing circuit to a host through an interface.

23. The scanning head module of claim 22, wherein said light
source comprises a light emitting diode (LED).

20 24. The scanning head module of claim 22, wherein said light
source comprises a cold cathode fluorescent lamp (CCFL).

25 25. The scanning head module of claim 22, wherein said
photosensitive detector comprises a charge coupled device (CCD).

26. The scanning head module of claim 22, wherein said
photosensitive detector comprises a CMOS sensor.

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27. The scanning head module of claim 22, wherein said photosensitive detector comprises a contact image sensor (CIS).

5 28. The scanning head module of claim 22, wherein said processing circuit comprises an application specific integrated circuit (ASIC).

10 29. The scanning head module of claim 28, wherein said application specific integrated circuit comprises an analog-to-digital converter circuit (ADC circuit) for digitizing the signal received from said photosensitive detector.

15 30. The scanning head module of claim 22, wherein said processing circuit comprises an analog-to-digital converter circuit and an application specific integrated circuit, said analog-to-digital converter circuit digitizing the signal received from said photosensitive detector and said application specific integrated circuit processing the digitized output of said analog-to-digital converter circuit.

20 31. The scanning head module of claim 22, wherein said main board is formed of polycarbonate (PC).

25 32. The scanning head module of claim 22, wherein said interface control circuit comprises a universal series bus (USB).

33. The scanning head module of claim 22, wherein said interface control circuit comprises an IEEE1394 series bus.

34. The scanning head module of claim 22, wherein said main board further comprises a motor control circuit.

5 35. A use of the scanning head module of claim 22, wherein said scanning head module is used as a scanner head of a scanner.

36. A use of the scanning head module of claim 22, wherein said scanning head module is applicable in a copying machine.

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37. A use of the scanning head module of claim 22, wherein said scanning head module is applicable in a facsimile machine.

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38. A use of the scanning head module of claim 22, wherein said scanning head module is applicable in a multi function peripheral (MFP).

39. The scanning head module of claim 22, wherein said scanning head module is movably installed in a body of a scanning system.

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40. The scanning head module of claim 22, wherein said scanning head module is fastened inside a body of a scanning system.